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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,573	07/25/2003	Yoshiaki Hirano	2003_1020A	9550

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EXAMINER	
KEYS, ROSALYND ANN	

ART UNIT	PAPER NUMBER
1621	

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,573	HIRANO ET AL.	
	Examiner	Art Unit	
	Rosalynd Keys	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2 and 4-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1, 2 and 4-13 are pending.

Claims 1, 2 and 4-13 are rejected.

Allowable Subject Matter

2. Upon further consideration, the indicated allowability of claim 10 is withdrawn (see rejections below).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. In particular in the last line of each of the claims the phrase "in using the solvent in the reaction step" makes the claims unclear.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 12 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Summer et al. (WO 91/16292).

Summer et al. teach a high purity aromatic ether having an alcoholic hydroxyl

group, i.e., resorcinol bis(dihydroxyethyl)ether (see entire disclosure). The metal or halogen content of purified product is not disclosed. However, since halogen are not used in the production of the aromatic ether of Summer et al. one would reasonably conclude that there is no halogen present in the aromatic ether product of Summer et al. As far as the metal content, the Examiner concluded that since Summer et al., like the Applicants, utilizes crystallization to purify their aromatic ether, then the aromatic ether of Summer et al. would also have a metal content of less than 100 ppm by mass. However, if the aromatic ether of Summer et al. do not have the claimed purity, then the instant aromatic ether is considered obvious over the aromatic ether of Summer et al. because when claiming a purer form of a known compound, it must be demonstrated that the purified material possess properties and utilities not possessed by the unpurified material. Ex parte Reed, 135 U.S.P.Q. 34, 36 (P.O.B.A. 1961), on reconsideration, Ex parte Reed, 135 U.S.P.Q. 105 (P.O.B.A. 1961). The Applicants have not shown this to be the case.

11. Claims 1, 2, 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fellows et al. (US 4,639,536).

Fellows et al. teach preparing 2-(2-hydroxy-2-methylpropoxy)phenol (an aromatic ether) by reacting catechol with isobutylene oxide in the presence of a base, such as a basic ion exchange resin and a solvent (see column 2, lines 26-51). Although the basic ion exchange resin is not the preferred base, its use as a base is clearly suggested by Fellows et al. Thus, one having ordinary skill in the art at the time the invention was made would have it obvious to utilize a basic ion exchange resin as catalyst in the production of an aromatic ether by reacting a phenol with an oxirane compound.

12. Claims 1, 2 and 4-13 are rejected under 35 U.S.C. 102(b) under 35 U.S.C. 103(a) as obvious over Hirano et al. (US 2002/0028887 A1) alone or in view of Fellows et al. (US 4,639,536).

Hirano et al. teach a cross linked polymer, useful as an ion exchange resin or polymer catalyst (see paragraph 0001 and paragraphs 0047-0061). This cross-linked polymer is disclosed as having resistance to thermal decomposition (see paragraphs 0114-115). This cross-linked polymer can be used as a catalyst in the reaction of a cyclic hetero compound, i.e. oxirane, with a phenol such as phenol, hydroquinone, A, cresol, catechol, resorcinol, bisphenol A, bisphenol S, bisphenol F, etc. (see paragraphs 0174, 0196, and 0233-0239). The glycol ethers produced by Hirano et al. may be purified (see paragraph 0237). The Examiner believes that the aromatic ethers produced by Hirano et al. will have the same or similar purity to claimed aromatic ethers since they are prepared by the same method.

Hirano et al. differ from the instant claims in that Hirano et al. do not disclose whether a solvent is utilized in the reaction of the oxirane with the phenol.

Fellows et al. teach a process wherein catechol (a phenol) is reacted with isobutylene oxide (an oxirane) in the presence of a base such as a basic ion exchange resin with or without a solvent (see column 2, lines 26-51). The solvents disclosed as suitable for use have the claimed solubility parameters.

One having ordinary skill in the art at the time the invention was made would have found it obvious to utilize a solvent in the process of Hirano et al., since Fellows teaches that it is known to use solvents in reactions involving a phenol with an oxirane in the presence of a basic ion exchange resin.

Hirano et al. further differ from the instant claims in that Hirano et al. do not specifically disclose the use of crystallization as the method of purification. However, crystallization is well

known method for purifying industrial products. One having ordinary skill in the art at the time the invention was made would have found it obvious to utilize any well-known method of purification on the glycol ether produced by Hirano et al., including the claimed crystallization.

Response to Amendment

13. The rejection of claims 1, 2 and 4-9 under 35 U.S.C. 102(b) as being anticipated by Hirano et al. (JP 2001-302729, computer generated English translation) is withdrawn, due to the incorporation of the limitations of claim 3 into claim 1.

14. The rejection of claims 1, 2 and 4-9 under 35 U.S.C. 102(b) as being anticipated by Hirano et al. (US 2002/0028887 A1) is withdrawn, due to the incorporation of the limitations of claim 3 into claim 1.

15. The rejection of claims 11 and 12 under 35 U.S.C. 102(b) as being anticipated by Dressler (US 5,059,723) is withdrawn, due to amendment to claim 11, wherein the reaction is between a phenol and an oxirane compound in the presence of an anion exchange resin. Dressler teaches reaction between a phenol and a cyclic organic carbonate in the presence of triorganophosphine compound.

Response to Arguments

Rejection of Claims 1, 2 and 4-6 under 35 U.S.C. 102(b) as being anticipated by Matayabas, Jr. et al. (US 5,536,882)

Applicant's arguments filed December 28, 2004 have been fully considered and are persuasive. This rejection is withdrawn.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M and F 3:00-8:00 pm and T-TR 5:30-10:30 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rosalynd Keys
Primary Examiner
Art Unit 1621

April 15, 2005